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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,330	12/23/2005	Andreas Schilling	1093-145 PCT/US	5691

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02/04/2009

EXAMINER
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PRITCHETT, JOSHUA L

ART UNIT	PAPER NUMBER
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2872

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/562,330	<b>Applicant(s)</b> SCHILLING ET AL.	
	<b>Examiner</b> JOSHUA L. PRITCHETT	<b>Art Unit</b> 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 22 and 24-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 and 23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

This action is in response to Amendment filed November 20, 2008. Applicant amended claim 16.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-10, 12, 13, 15-19, 21 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee (US 2001/0043396).

Regarding claim 1, Lee discloses an optical security element having a substrate layer wherein a relief structure defined by relief parameters is shaped in a surface region of the substrate layer which region is defined by an X-axis and a Y-axis for producing an optically perceptible effect (abstract) wherein one or more relief parameters defining the relief structure in the surface region are varied periodically in accordance with a periodic parameter variation function (Fig. 1) wherein the surface region is divided into one or more pattern regions (2) and a background region (1) and wherein one or more of the relief parameters defining the relief structure relief shape, relief depth, spatial frequency and azimuth angle in the background region

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and one or more pattern regions are varied periodically in accordance with a periodic parameter variation function wherein the relief structure is a diffraction grating (abstract) and the period of the parameter variation function is between 20 and 300 microns (para. 0065) and one or more of the relief parameters defining the relief structure, relief shape, relief depth, spatial frequency and azimuth angle in the one or more pattern regions are varied in accordance with a parameter variation function which is phase-displaced with respect to the parameter variation function of the background region (Figs. 1 and 10).

Regarding claim 2, Lee discloses the phase displacement of the parameter variation function between the pattern region and the background region is about 180 degrees (Fig. 5a).

Regarding claim 3, Lee discloses the phase displacement of the parameter variation function between the pattern region and the background region is selected in accordance with the contrast to be set (para. 0099).

Regarding claim 4, Lee discloses the relief structure is a diffraction grating whose azimuth angle is varied periodically in accordance with the parameter variation function (Fig. 5b).

Regarding claim 5, Lee discloses the mean azimuth angle in relation to the resolution capacity of the human eye is constant (para. 0095).

Regarding claim 6, Lee discloses the parameter variation varies the azimuth angle of the diffraction grating periodically in dependence on the value of the X-axis (Fig. 5a).

Regarding claim 7, Lee discloses the parameter variation function varies the azimuth angle of the diffraction grating in such a way that the diffraction grating is composed of a plurality of serpentine line-shaped lines (Fig. 5a).

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Regarding claim 8, Lee discloses the parameter variation function is a sine function which varies the azimuth angle of the diffraction grating in dependence on the value of the X-axis (fig. 5a).

Regarding claim 9, Lee discloses the parameter variation function varies the azimuth angle of the diffraction grating periodically in dependence on the value of the X-axis and the value of the Y-axis (Fig. 5a).

Regarding claim 10, Lee discloses the parameter variation function varies the azimuth angle of the diffraction grating in such a way that the diffraction grating is composed of a plurality of lines arranged in concentric circles (Fig. 12c; para. 0095).

Regarding claim 12, Lee discloses the relief structure is a diffraction grating whose spatial frequency is varied periodically in accordance with the parameter variation function (Figs. 5a-6b).

Regarding claim 13, Lee discloses the mean spatial frequency in relation to the resolution capacity of the human eye is constant (para. 0095).

Regarding claim 15, Lee discloses the parameter variation function is a sawtooth function, triangular function or sine function (Fig. 5a).

Regarding claim 16, Lee discloses the relief structure is a diffraction grating whose profile depth is varied periodically in accordance with the parameter variation function (para. 0024, 0095; fig. 7d).

Regarding claim 17, Lee discloses the parameter variation function varies the profiled depth of the diffraction grating periodically between a maximum depth and a minimum depth in dependence on the value of the X-axis (para. 0002).

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Regarding claim 18, Lee discloses the parameter variation function is a triangular, rectangular or sine function (Fig. 7c-7e).

Regarding claim 19, Lee discloses the relief shape is varied periodically in accordance with the parameter variation function (para. 0095).

Regarding claim 21, Lee discloses the width of the troughs of the relief structure is varied periodically in accordance with the parameter variation function (Fig. 5a-6b).

Regarding claim 23, Lee discloses the phase displacement between the background region and the pattern region is accompanied by a further function change (Figs. 5a-5b).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11, 14 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (US 2001/0043396) in view of Staub (US 6,157,487).

Regarding claims 11 and 14, Lee teaches the invention as claimed but lacks reference to the claimed line density. Staub teaches a line density of greater than 300 lines per millimeter (col. 7 lines 8-14). It would have been obvious to one of ordinary skill in the art at the time the

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invention was made to have the Lee invention include the claimed line density as taught by Staub for the purpose of creating a pattern smaller than the perception resolution of the naked human eye.

Regarding claim 20, Lee teaches the invention as claimed but lacks reference to the claimed relief shape. Staub teaches the relief shape is varied periodically between two asymmetrical mutual mirror-symmetrical relief shapes (Fig. 5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Lee invention include the claimed relief shape as taught by Staub for the purpose of varying the pattern to create an optically perceptible effect.

### ***Response to Arguments***

Applicant's arguments, see Amendment, filed November 20, 2008, with respect to the rejection(s) of claim(s) 1 under Mueller have been fully considered and are persuasive.

Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Lee. Applicant argued Mueller was not a diffraction grating. Examiner agrees and the rejection based on Mueller is withdrawn. A new rejection based on Lee is set forth above.

### ***Conclusion***

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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Staub (US 6,417,968) teaches a diffraction device with a relief shape similar to the claimed relief shape.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSHUA L. PRITCHETT whose telephone number is (571)272-2318. The examiner can normally be reached on Monday - Friday 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Joshua L Pritchett/  
Primary Examiner  
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